

## **An investigation of behaviour and attitudes relevant to the user safety of pedestrian/cyclist shared paths**

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### **Extended Abstract**

#### *Introduction*

Many jurisdictions worldwide have policies encouraging cycling and walking for their environmental, health, economic and social benefits. For these policies to be effective, transport systems must accommodate both cyclists and walkers safely, and comfortably.

Shared paths are frequently used to achieve the often-called-for separation of cyclists from motorised traffic within built-up cities where room for a separate cycleway is impractical and/or prohibitively expensive. Such separation is thought to be safer for cyclists.

However, there are concerns about mixing vulnerable user groups travelling at very different speeds in a fairly unregulated environment.

Little is known about pedestrian and cyclist behaviour on shared paths or about the impacts of conflict-minimisation policies (e.g. lane-centre marking).

#### *Methods*

407 cyclist/pedestrian passing events were observed on three relatively wide, busy shared paths in Sydney, Australia – one of them without lane-centre marking. 196 additional cyclists were observed independently of passing events (because there were more cyclists than pedestrians on the path).

At each location a stretch of approximately 20m was selected. Observation sessions were conducted in mid-May 2012 on two weekdays, during a morning peak session (07:30 - 09:30) and an afternoon peak session (16:30 - 18:30) and two Saturdays (10:00 - 12:00, 13:00 - 16:00).

Positioned in an unobtrusive location, observers worked in pairs – one responsible for observing cyclists and the other responsible for observing pedestrians. Together the observers selected the first cyclist/pedestrian pair that was likely to pass each other after observations of the previous cyclist/pedestrian pair were complete (a random selection). The observers recorded a matching event ID on the cyclist and pedestrian observation sheet, respectively.

Observation sheets were employed to allow quick and easy recording of estimated age, gender, travel direction, and behaviours, for cyclists and pedestrians, respectively. For both cyclists and pedestrians, behaviours recorded were: whether they were using a phone or mp3 player, how many companions they had, their position before, and during, passing (the left, middle, or right third of the lane – considered from the user’s viewpoint), their speed before passing and whether they slowed to pass. For cyclists, recordings were also made as to whether they used front light and/or back lights at night, and whether they warned the pedestrian. For pedestrians, recordings were also made as to whether they responded to any warning from the cyclist, and

whether any accompanying children were by their side, and any accompanying animals on a leash. Cyclists speeds were recorded as <10km/h, 10-20km/h, or >20km/h. Pedestrian speeds were recorded standing, walking, or running.

Any aggression, crashes, or near misses, were also recorded and described. Near misses were defined as “an unexpected event while cycling that causes the cyclist or another party to take sudden evasive action, and without such action a collision or fall would have happened”. The descriptions sought to capture which party(ies) were at fault, contributing factors, type of crash, and injury outcomes. Location, date, time and observer were recorded on each observation sheet.

A survey was conducted at the cross-roads where each of the observations sites converge. Interviewers invited cyclists and pedestrians to participate in a brief interview “about shared path safety”. The structured interview protocol used for cyclists comprised of questions about how frequently they cycle on “this” shared path (5 or more days per week; 1-4 days per week; 1-3 days per month; Less than once per month; Never before), whether they have ever had a collision or near collision with a pedestrian here (or, if not, at another shared path) and details of any incident, whether they have ever “exchanged angry words or gestures with a pedestrian” here (or, if not, at another shared path) and details of any incident. They were also asked, when they are cycling along the path, how many pedestrians keep to the left side of the path (Almost none; A few; Quite a lot; Nearly all), how often pedestrians fail to supervise children and control animals adequately (both: Never; Rarely; Occasionally; Often; Almost always). Information about personal characteristics (language spoken at home, age group, and gender) was also collected. A parallel interview protocol was employed with pedestrians, except that in place of the questions on supervision pedestrians were asked how many cyclists pass at a speed that you feel is too high (Almost none; A few; Quite a lot; Nearly all), how often a cyclist has warned them of imminent passing (e.g. by ringing their bell or calling out; Never; Rarely; Occasionally; Often; Almost always), and whether they find such warnings helpful, or aggressive, or something else.

### *Results*

A tendency toward left-hand travel, as on Australian roads, was stronger for cyclists, and where centreline was present. Cyclists were often observed to travel above 10km/h, a speed that would be recommended based on safety considerations, but that is not likely to be acceptable to cyclists for long stretches of commuter travel. Centreline was associated with slower cyclist travel speeds. Cyclists typically adhere to their responsibility of giving way to pedestrians, but seldom warn of passing (e.g. with a bell). Cyclists frequently pass on the left of pedestrians, often too close and without slowing. Use of mobile telephones and mp3 players is common, particularly amongst pedestrians, and appears to contribute to potential crashes. Incidents were fairly common, and most likely to emerge when one or both users strayed from the rules of thumb to keep to the left, and to overtake on the right. Survey responses suggested that there are issues with perceptions of space ownership. Attitudes of each user group toward their counterpart are presented in Figure 1 and 2 below.

### *Discussion*

This is the first observational research identifying potential hazards on pedestrian/cyclist shared use paths, and to highlighting the potential value of centreline marking, legislation and public education programs to address particular behavioural issues. Nonetheless, safer alternatives to shared paths should also be considered.

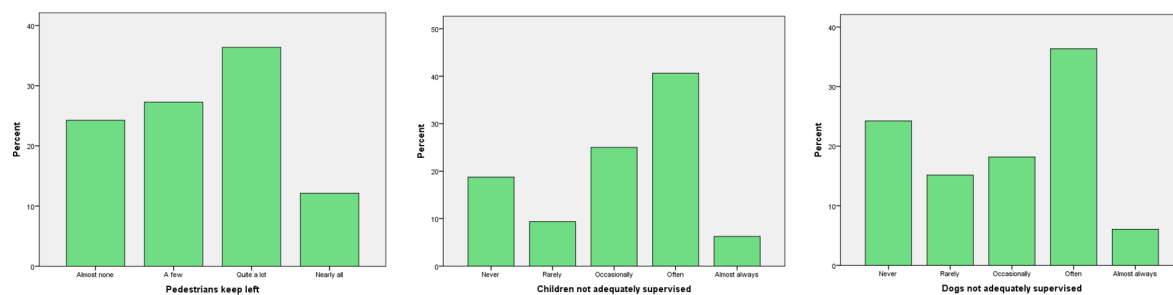


Figure 1: Percentage of interviewed cyclists giving each response to questions about whether pedestrians keep left, and fail to adequately supervise children and dogs.

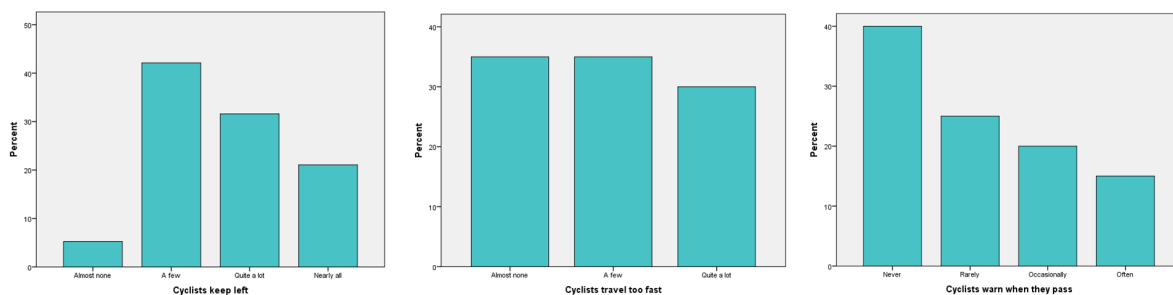


Figure 2: Percentage of interviewed pedestrians giving each response to questions about whether cyclists keep left, travel too fast, and give warnings when they pass

**Keywords**

Cycling safety; Shared paths; Cyclist behaviour; Pedestrian behaviour

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